***MARS SCOUT AO***
***ELV LAUNCH SERVICES PROGRAM INFORMATION SUMMARY***
***2/28/2008***

## Domestic ELV Launch Services Ground Rules/Policy

Any domestic Expendable Launch Vehicles (ELV) proposed for this AO will be procured and managed by NASA/Launch Services Program (LSP) via the NASA Launch Services (NLS) contract. Under the provisions of this AO, domestic launch services cannot be procured directly by the PI/proposed team, nor can a partner contribute a domestic launch service.

Under the provisions of the NLS Contract, the launch service includes the launch vehicle (LV) and associated standard services, non-standard services (mission unique options), all engineering and analysis, and minimum performance standards. LSP also provides technical management of the launch service, technical insight into the LV production/test, coordinates and approves mission-specific integration activities, mission unique LV hardware/software development, provides payload-processing accommodations, and manages the launch campaign/countdown.

Upon mission selection, LSP via the NLS Contract will competitively select a launch service provider for the mission based on customer requirements. Accordingly, assumption of a specific launch vehicle configuration as part of the AO proposal will not guarantee that the proposed LV configuration will be selected for award of a Launch Service Task Order, unless there is firm technical rationale for sole source. This rationale should be clearly explained in the proposal.

All NASA-procured launch services are to be consistent with NASA Policy Directive (NPD) 8610.7, NASA Launch Services Risk Mitigation Policy. Expendable launch services acquired from NASA will be managed in accordance with NPD 8610.23, Technical Oversight of Expendable Launch Vehicle (ELV) Launch Services and NPD 8610.24, Launch Services Program (LSP) Pre-Launch Readiness Reviews. These NPDs can be accessed through the URLs:

> http://nodis3.gsfc.nasa.gov/displayDir.cfm?Internal_ID=N_PD_8610_007C_&page_name=main
>
> http://nodis3.gsfc.nasa.gov/displayDir.cfm?Internal_ID=N_PD_8610_023C_&page_name=main
>
> http://nodis3.gsfc.nasa.gov/displayDir.cfm?Internal_ID=N_PD_8610_024B_&page_name=main

Range Documentation can be found at:

> http://www.e-publishing.af.mil/pubs/publist.asp?puborg=AFSPC&series=91

Dual manifested or secondary payloads on domestic LVs will not be considered as part of this AO.

## Foreign Launch Vehicles

The Launch Services Program cannot procure foreign launch vehicles. Any foreign launch service offered as an international cooperative must be arranged and managed by the spacecraft program.

## Launch Vehicle Information/Configuration/Performance

The NASA Launch Services Program (LSP) has developed an on-line payload planner's guide for NASA missions. This web site contains information relevant to NASA-procured launch services. The information provided includes all NLS LV configurations, standard/non-standard services that are available as well as payload fairing envelopes and environments. This planning tool can be found at the following web address: https://elvppg.ksc.nasa.gov. Access to this site requires a self-determined password, which is activated by the site administrator at KSC. A user can request access/password activation by going to the site and following the directions provided on the log-in screen as well as providing the required information. Access to this web site can typically be activated within 24-48 hours during the week. For questions, contact LSP/ELV. This web site contains no information on foreign LVs.

The Offerors should select the minimum launch service performance class that meets their requirements including adequate performance margins. As a reference, the LSP has developed an on-line tool to assist in determining LV performance. This tool is publicly accessible at the following web address: http://elvperf.ksc.nasa.gov. The performance information reflects figures consistent with the NLS Contractual commitments. All of these figures reflect separated spacecraft mass and each have associated ground rules/assumptions (including the adapter-type). For variations from what is found on-line, contact LSP for an assessment. The Offerors should specifically state in the proposal the launch service performance range to meet their requirements for this mission. This web site contains no information on foreign LVs.

## Nuclear Launch Approval

For missions using nuclear materials, the LSP is responsible for managing the development, coordination and technical content of the LV Databooks. The costs for the mission unique databook(s) and other LV-related items (e.g., range requirements for the LV, FTS system, event sequence diagrams, etc.) have not been accounted for in the noted cost figures since these are not required for this mission. These costs are only applicable for missions that are using nuclear materials on-board.

## Launch Service Costs

Table 1 provides Launch Service cost figures and phasing for each of the given Launch Service performance classes by launch date. Based on the Offeror's selection of the individual ELV configuration(s) that meet their technical requirements, the Offeror should

use the respective Launch Service class dollar figures in the overall mission cost. Cost risk within each Launch Service Class should be considered constant for purposes of this AO (i.e., proposals should not attempt to distinguish differences in cost between launch vehicles within a respective class).

Funding estimates for the proposal are stated in real-year dollars, and evenly spaced representative launch dates are shown**.** The funding profiles provide for the launch service, nominal allocation for mission unique launch vehicle modifications/services, mission integration, launch site payload processing, telemetry support, and the LV-related tasks for the Nuclear Launch Approval process. When applicable, the estimated costs for Nuclear Launch Approval are covered in these figures and include items such as LV Databooks, Launch site accommodations for nuclear materials, material handling/logistics by DOE, and Range Safety requirements associated with the LV, but these were not required for this mission. The funding profiles are for planning purposes only and may be adjusted after launch service award.

## Evaluation Criteria

Attachment 1 shows the evaluation checklist that will be used as a guide for the evaluators during the proposal evaluation phase. This checklist should give the Offerors an indication of the types of information that are expected to be contained in the proposals.

## NASA Launch Services Program Point of Contact for Additional Information

Additional information including, but not limited to, availability of smaller or larger launch vehicles, performance quotes, mission integration inquiries and costs may be obtained from:

**Chuck Tatro**
**NASA Launch Services Program/Flight Projects Office**
**Mail Code VA-C**
**Kennedy Space Center, FL 32899**

**Phone: 321-867-1121**
**Email: charles.a.tatro@nasa.gov**

# Table 1
# Launch Services Performance Ranges and Cost Figures $M

## ELV Launch Service Class

| Mars Scout Pricing Exercise Summary – November 2013 Launch Dates | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Performance Range (kg)** See Notes | **Launch Date** | **Launch Site** | **FY10** | **FY11** | **FY12** | **FY13** | **FY14** | **Total** |
| **C3 = 8** | | | | | | | | |
| 4m PLF 0-2955 | Nov 2013 | CCAFS | **1** | **41** | **54** | **57** | **0** | **153** |
| 5m PLF 0-2250 | Nov 2013 | CCAFS | **1** | **43** | **57** | **61** | **0** | **162** |
| 5m PLF 2250-3910 | Nov 2013 | CCAFS | **1** | **49** | **65** | **69** | **0** | **184** |
| **C3 = 12** | | | | | | | | |
| 4m PLF 0-2725 | Nov 2013 | CCAFS | **1** | **41** | **54** | **57** | **0** | **153** |
| 5m PLF 0-2050 | Nov 2013 | CCAFS | **1** | **43** | **57** | **61** | **0** | **162** |
| 5m PLF 2250-3620 | Nov 2013 | CCAFS | **1** | **49** | **65** | **69** | **0** | **184** |

| Mars Scout Pricing Exercise Summary – January 2014 Launch Dates | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Performance Range (kg)** See Notes | **Launch Date** | **Launch Site** | **FY10** | **FY11** | **FY12** | **FY13** | **FY14** | **Total** |
| **C3 = 8** | | | | | | | | |
| 4m PLF 0-2955 | Jan 2014 | CCAFS | **1** | **32** | **54** | **57** | **9** | **153** |
| 5m PLF 0-2250 | Jan 2014 | CCAFS | **1** | **33** | **57** | **60** | **11** | **162** |
| 5m PLF 2250-3910 | Jan 2014 | CCAFS | **1** | **38** | **66** | **68** | **12** | **185** |
| **C3 = 12** | | | | | | | | |
| 4m PLF 0-2725 | Jan 2014 | CCAFS | **1** | **32** | **54** | **57** | **9** | **153** |
| 5m PLF 0-2050 | Jan 2014 | CCAFS | **1** | **33** | **57** | **60** | **11** | **162** |
| 5m PLF 2250-3620 | Jan 2014 | CCAFS | **1** | **38** | **66** | **68** | **12** | **185** |

Notes (Updated 2/28/08):

The launch service costs of any NASA-provided ELV must be included in the proposal's MEP and Total Mission Cost. If the investigation is selected, NASA expects to contract with the appropriate U.S. launch-service provider to acquire the launch service for the investigation. Once the mission is selected, any increase in the cost of the launch vehicle will not be the responsibility of the PI. The PI is responsible however, for any increased launch vehicle or launch services costs resulting from mission-generated requirements changes after selection of the launch service.

Launch services will be competed through the LSTO Acquisition Process. The launch service prices are estimates and are not to be considered commitments from the Launch Service Program

The funding profiles provide for the launch service, nominal allocation for mission unique launch vehicle modifications/services, mission integration, launch site payload processing, range safety, and telemetry/communications. Budget does not include delays.

All costs are estimated in real-year dollars (order year=L-30 mo.) based on current NLS contract information.

Due to uncertainty of USAF infrastructure cost allocations and EELV manifest, NASA Headquarters Programs should request reserves to cover the threat of unexpected price increases beyond the NLS contract mechanism. The NLS Contract ordering period expires June 2010, so missions in 2013 and beyond are at risk. At this time, quantifying that risk is challenging, but meetings such as the SOMD/SMD Launch Vehicle Summit (25 January 2008) are being coordinated to hopefully better define future prices.

# Attachment 1

# AO Evaluation Form

# Launch Services Program

Proposal Name: _____

Proposal #: _____

Evaluator POC: _____

Phone: _____

Email: _____

**Launch Service Technical Evaluation:**

**Overall Assessment**: - Given the ground rules in the AO, is the proposed launch vehicle (LV) concept feasible for this application? (☐Yes or ☐ No)

Comments:_____

_____

**LV Performance:** Area of concern (☐Yes or ☐ No)

Proposed LV configuration: _____

Proposed Launch Date: _____

Launch Period (MM/DD/YYYY to MM/DD/YYYY): _____/____/_____ to _____/____/_____

Launch Window (On any given day of the launch period Minutes:Seconds): _____ : _____

Orbit requirements: Apogee: _____ km Perigee: _____ km Inclination: _____deg.

High Energy requirements: $C_3$: _____ $km^2/sec^2$ DLA: _____deg RLA: _____deg

Proposed LV Performance: _____

Mass (including reserves) Dry Mass: _____ kg Wet Mass: _____ kg

Dry Mass Margin: _____ kg _____ %

Wet Mass Margin _____ kg _____ %

Formulas:
Mass Margin kg = LV Performance – S/C Mass (including reserves)
Mass Margin % = [(Mass Margin kg)/ S/C Mass (including reserves) kg] X 100

LV Performance Comments/issues/concerns:

_____

_____

**Launch Service Cost Assessment:** Area of concern (☐Yes or ☐ No)

Is Launch Service cost profile consistent with AO LV Appendix? (☐Yes or ☐ No)

Is there additional funding for any mission unique modifications/services? (☐Yes or ☐ No)

**LV Integration:** Area of concern (☐Yes or ☐ No)

Does the proposer have experience in LV integration? (☐Yes or ☐ No)
**LV to Spacecraft Interface**: Area of concern (☐Yes or ☐ No)

Proposed Payload Fairing (PLF) _____

Spacecraft (S/C) Dimensions: Radial:_____ m Height _____ m

Any intrusions outside of the PLF usable dynamic volume? (☐Yes or ☐ No)

Mechanical Interface:

Standard Adapter: _____ Custom Adaptor: _____

Electrical Interface:

Standard _____ Pin(s) Connector(s): (☐Yes or ☐ No)

Mission Unique requirements:

Instrument T-0 $GN_2$ Purge: (☐Yes or ☐ No)

T-0 S/C Battery Cooling: (☐Yes or ☐ No)

Planetary Protection Requirements: (☐Yes or ☐ No)

Contamination Control Requirements: PLF: (☐Yes or ☐ No) LV adapter: (☐Yes or ☐ No)

Cleanliness Level: _____ other: _____

Unique Facility Requirements: (☐Yes or ☐ No)

Pad: _____

S/C Processing Facility: _____

S/C Environmental Test Plans

Environmental Test Plan/Flow described: (☐Yes or ☐ No)

Test Levels provided: (☐Yes or ☐ No)

Test Schedule provided: (☐Yes or ☐ No)

Comments/issues/concerns: _____
_____

**Spacecraft Schedule**: Area of concern (☐Yes or ☐ No)

Adequate timing of:
- Launch Service Integration Start Time: (☐Yes or ☐ No)
- S/C Environmental Test Program: (☐Yes or ☐ No)
- Delivery of Verified S/C Model: (☐Yes or ☐ No)
- S/C ship date: (☐Yes or ☐ No)
- S/C to LV integrated Operations: (☐Yes or ☐ No)

**Missions with Radiological material** Area of concern (☐Yes or ☐ No)

List the Radiological Sources: _____

Are unique facilities required to store/process the Radiological Sources? (☐Yes or ☐ No)

Any LV modifications required for additional safety or Launch approval? (☐Yes or ☐ No)